Diploglottis alaticarpa W.E.Cooper (Sapindaceae), a new species from Queensland's Wet Tropics

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Summary

Cooper, W.E. (2014). *Diploglottis alaticarpa* W.E.Cooper (Sapindaceae), a new species from Queensland's Wet Tropics. ***Austrobaileya* 9(2): 198–202**. *Diploglottis alaticarpa* W.E.Cooper is described and illustrated. Notes on habitat and distribution are provided, as well as a species identification key for the genus.

Key Words: Sapindaceae, *Diploglottis*, *Diploglottis alaticarpa*, Australia flora, Queensland flora, new species, taxonomy, rainforest

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Introduction

Diploglottis Hook.f. (Sapindaceae) was noted as a genus of eight endemic species in Australia by Reynolds (1985: 33). A further two Australian endemic species were described by Reynolds (1987), *viz. D. bernieana* S.T.Reynolds and *D. obovata* S.T.Reynolds. Harden (1986) reinstated *D. australis* (G.Don) Radlk. with *D.cunninghamii* (Hook.) Hook.f. ex Benth. in synonymy. Leenhouts (1994: 520) synonymised *D. cunninghamii* (Hook.) Hook.f. ex Benth. and *D. diphyllostegia* (F.Muell.) F.M.Bailey with *D. australis* and stated there to be 11 (although this enumeration was overly incorrect) species in northeast Australia, with one of those also occurring in New Guinea and New Caledonia.

Leenhouts (1994) treatment of *Diploglottis diphyllostegia* has not been accepted and it has continued to be recognised as a distinct entity (Hyland *et al.* 2003; Cooper & Cooper 2004; Forster & Jessup 2007). Including the species newly described here, *Diploglottis* (Sapindaceae) is now a genus of 11 species, all occurring in Australia with 10 species considered endemic. *Diploglottis* in Australia is more widespread than indicated by Leenhouts (1994), occurring in rainforest and monsoon forests of eastern Australia from Cape York on northernmost Queensland to the Illawarra district in southern New South Wales.

A sterile specimen of an unsual *Diploglottis* was first collected by Rigel Jensen before 1994 and determined by the then QRS herbarium (now CNS) as *Sapindaceae* (Palmerston Rigel Jensen *s.n.*) as evidenced in Cooper (1994: 312); however, the specimen appears to be lost. Since 1994, subsequent collections of this plant have been usually included within *D. bracteata* Leenh. Additional fertile specimens have conclusively shown that the species described below as *D. alaticarpa* W.E.Cooper is quite distinct from that species in leaf and fruiting features. From herbarium records and field observations, *D. alaticarpa* and *D. bracteata* do not occur together and are therefore allopatric.

Diploglottis was considered by Acevedo-Rodríguez *et al.* (2011) to be falsely polygamous and Gross (2005) described *D. smithii* S.T.Reynolds as monoecious. Whereas, vouchers from *D. alaticarpa* with male flowers (*Cooper 2229*) and with bisexual flowers (*Cooper 2230*), both collected from the same tree but on different dates, confirm the species to be polygamo-dioecious.

Based on *Diploglottis* species known at the time, Leenhouts (1994) characterised the genus as having fruit that are not winged;

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however, the new species described herein has distinctly winged sutures, a newly recognised trait for *Diploglottis*.

Materials and methods

The study is based upon the examination of herbarium material from CNS and BRI, as well as field observations. All specimens cited have been seen by the author.

Measurements of the floral parts and fruits are based on material preserved in 70% ethanol as well as fresh material from the field.

Taxonomy

Diploglottis alaticarpa W.E.Cooper **sp. nov.** Similar to *D. bracteata* Leenh. but differs in the new leaves (silvery-pink versus silvery-green), rachis (sericeous becoming glabrescent versus persistently sericeous), leaflet upperside (shiny versus dull), primary vein on leaflet upperside (slightly raised versus flat or slightly raised within a distinctly deep and narrow groove), fruit (winged versus not winged, sparsely hairy versus puberulent, opening widely and becoming campanulate to allow seeds to fall versus opening slightly and not changing shape (never campanulate) with valves separating and dropping to allow seeds to fall or whole fruits fall and dehisce on the ground). **Typus:** Queensland. Cook District: Southern side of Palmerston Highway near Mamu Boardwalk, Wooroonooran National Park [west of Innisfail], 19 December 2013, *W.Cooper 2232* & *R.Jensen* (holo: CNS [3 sheets + spirit]; iso: BRI, CANB, K, L, MO *distribuendi*).

Sapindaceae (Palmerston Rigel Jensen *s.n.*); Cooper & Cooper (1994: 312).

Tree to 22 m, monoecious, dbh to 40 cm; trunk not fluted, bark lacking distinctive features; branchlets shallowly ribbed, minutely lenticellate, glabrous; new growth silvery-pink and sericeous. **Leaves** compound, alternate; rachis + petiole 12–41 cm long, sericeous but soon glabrescent, flattened along upperside, ribbed, minutely lenticellate, pulvinus 7–12 mm long. **Leaflets** subopposite to alternate, coriaceous, 9–19; petiolules 7–25 mm long, grooved on upperside, pulvinulus 5–12 mm long, glabrescent; lamina oblong, oblong-obovate or oblong-elliptical, 44–185 mm long, 18–63 mm wide; base cuneate, sometimes asymmetrical; apex emarginate; margin entire; upperside glabrous or with sparse minute hairs on secondary veins; underside glabrescent with sparse appressed minute hairs; venation camptodromous; primary vein slightly raised; secondary veins 8–15 pairs, slightly raised on upperside and distinctly raised on underside; tertiary venation reticulate. **Inflorescence** an axillary or pseudo-terminal panicle up to 240 mm long, sericeous; rachis ribbed, pulvinate; cymules 4-flowered; bracts caducous, ovate, base truncate, apex acute, 12–25 mm long, 3–7 mm wide, both sides sericeous. **Flowers** actinomorphic, unisexual (staminate) or apparently bisexual, diameter 2.3–5.3 mm, buds broadly ovoid; pedicels 1.5–2 mm long, terete; calyx shortly cupular, 5 lobed, lobes *c.* 2 mm long and wide, both sides sericeous; petals 5, broadly orbicular or obovate, 1.3–2.5 mm long, 1.5–2.5 mm wide, outside sparsely pilose proximally, pilose inside, margin ciliate; scale divided to base, crested, pilose; disk annular, thick, not interrupted, glabrous; stamens 7 or 8, filaments to 2 mm long, pilose, hairs proximally denser; anthers oblong, bilocular, *c.* 1 mm long, basifixed, dehiscing laterally, glabrous; pistillode sericeous, 3-celled; ovary sericeous, *c.* 2 mm long, 3-locular; ovules 1 per locule; style sparsely hairy. **Fruiting pedicel** 5–8 mm long; **fruit** a 3-(rarely 4-) locular capsule, triangular-oblate (unless 1 or 2 ovules are aborted then asymmetricaly oblate or globular), 26–33 mm long, 23.5–44 mm wide, yellowish-green and mostly blushed with pink proximally, sparsely and minutely hairy; sutures winged in basal half, wings 2.5–4 mm wide; walls leathery, orange and sericeous inside, opening widely and becoming campanulate to allow shedding of seeds; seeds 1–3, lenticular, 14–26 mm long, 16–22 mm wide, 9–14.5 mm thick, testa dark brown; aril 2-lobed, orange-red, completely or almost completely covering seed, margin thin. **Fig. 1.**

***Additional specimens examined*: Queensland.** Cook District: Pullom Road, Palmerston, Sep 2013, *Cooper 2228 & Cooper* (CNS); *loc. cit.*, Oct 2013, *Cooper 2229* (CNS); *loc. cit.*, Nov 2013, *Cooper 2230* (CNS); Pullom

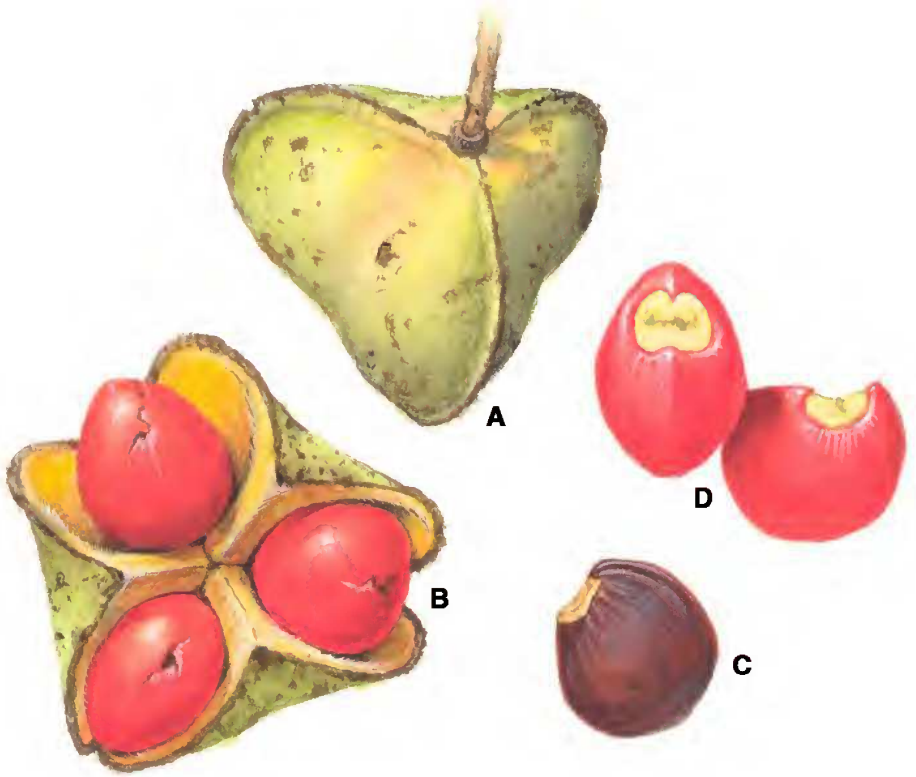

Fig. 1. ***Diploglottis alaticarpa*** fruit A. Indehisced fruit viewed from base, showing winged sutures. B. Dehisced fruit from apex, showing sericeous inner valves and arillate seeds. C. Seed with aril removed. D. Seeds with arils intact showing pale coloured attachment scar. All natural size. Del. W.T.Cooper

Road, 17 km WNW of South Johnstone, Dec 2003, *Forster PIF29795 & Jensen* (BRI); Wooroonooran NP Palmerston Section, Dec 1998, *Jensen 947* (BRI); Near Bora Creek, Johnstone River, Oct 1995, *Jensen 432* (CNS); Crawfords Lookout, Palmerston NP, Dec 2013, *Cooper 2233 & Jensen* (CNS); NPR 904, Palmerston, near Crawfords Lookout, Jan 1997, *Jensen 812* (CNS).

***Distribution and habitat*:** *Diploglottis alaticarpa* is endemic to the Wet Tropics bioregion in north-east Queensland, where it is currently known to occur mostly within Wooroonooran National Park in the Palmerston section, between the Johnstone River and the South Johnstone River west of Innisfail, altitude 100–362 m (**Map 1**).

Diploglottis alticarpa grows as an understory tree in complex mesophyll vine forest on basalt soil. It commonly co-occurs with *Aglaia ferruginea* C.T.White & W.D.Francis, *Argyrodendron trifoliolatum* F.Muell., *Cardwellia sublimis* F.Muell., *Eupomatia laurina* R.Br., *Flindersia brayleyana* F.Muell., *Myristica globosa* subsp. *muelleri* (Warb.) W.J.de Wilde, *Neolitsea dealbata* (R.Br.) Merr., *Rhysotoechia robertsonii* (F.Muell.) Radlk., *Synima macrophylla* S.T.Reynolds and *Syzygium gustavioides* (F.M.Bailey) B.Hyland.

***Phenology*:** Flowers have been recorded in October and November: fruits have been recorded in December and January.

***Affinities*:** *Diploglottis alaticarpa* appears to be most similar to *D. bracteata*. The leaves, flowers, arils and seeds are similar but the two species differ most remarkably by the

colour of new leaf growth (silvery-pink versus silvery-green), primary vein (virtually flush with leaf blade versus slightly raised or flush in a deep groove) and fruit sutures (winged versus not winged).

***Etymology*:** The specific epithet comes from the Latin *alatus* (winged), *carpus* (fruit) referring to the winged fruit, an unusual trait for *Diploglottis*.

Identification key to *Diploglottis* species

1 Fruit sutures outwardly ribbed or winged **2**
1. Fruit sutures smooth or depressed **3**

2 Fruit green, sparsely hairy, sutures distinctly winged; leaflets flat, glabrous or with sparse minute pale hairs . . . . . **D. alaticarpa**
2. Fruit yellow or orange, densely rusty hairy, sutures ribbed not truly winged; leaflets bullate and rusty hairy . . . . . **D. bernieana**

3 Fruit glabrous or sparsely hairy **4**
3. Fruit velvety or densely hairy **6**

4 Aril orange; young growth, peduncles and leaf axes villous with deep red hairs; leaflets 5–10 pairs . . . . . **D. pedleyi**
4. Aril red (with the exception of a very rare occurrence of orange); indumentum of pale hairs; leaflets 2–4 pairs **5**

5 Fruit valves thick; petiolules 10–35 mm long; inflorescence 10–25 mm long; occurs north of Innisfail NE Qld . . . . . **D. harpulliodes**
5. Fruit valves thin, aril rarely orange; petiolules 2–5 mm long; inflorescence 120–160 mm long; occurs in SE Qld and NE NSW . . . . . **D. campbellii**

6 Leaflets distinctly bullate **7**
6. Leaflets flat, secondary veins may be depressed but not truly bullate **9**

7 Indumentum of pale hairs . . . . . **D. smithii**
7. Indumentum of rusty or dark brown hairs **8**

8 Sparsely branched or mostly an unbranched tree to 6 m; new growth pink; occurs north from Cooktown NE Qld . . . . . **D. macrantha**
8. Tree to 35 m; new growth green; occurs south from Mt Walsh NP SE Qld and NE NSW . . . . . **D. australis**

9 Indumentum silvery; primary vein slightly raised or flush in a deep groove . **D. bracteata**
9. Indumentum rusty; primary vein not deep with a groove **10**

10 Leaflet apices shortly acuminate; occurs north from Eungella, central eastern Qld . . . . . **D. diphyllostegia**
10. Leaflet apices obtuse or truncate; occurs from Sarina to Proserpine area, central eastern Qld . . . . . **D. obovata**

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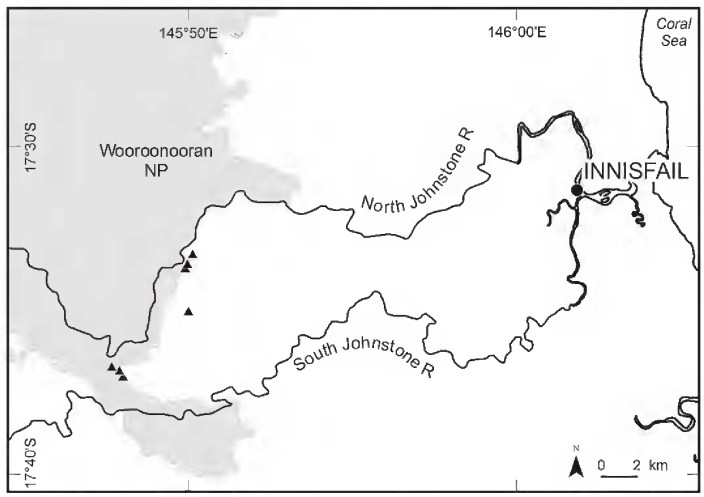

Map 1. Distribution of *Diploglottis alaticarpa* in northeast Queensland. Shaded area on map indicates Wooroonooran National Park.